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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,008	02/08/2002	Hitotoshi Kimura	Q68459	6420

7590 01/16/2004
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EXAMINER

VO, ANH T N

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 01/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/068,008

Applicant(s)

KIMURA ET AL.

Examiner

Anh T.N. Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18, 45 and 82 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18, 45, and 82 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Non- Final Rejections

Drawings Object to

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the recitation “wherein at least....recording heads” in claim 8 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Claimed Subject Matter Not in Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the limitation “wherein at least....recording heads” in claim 8 lacks antecedent basis in the specification.

Claim Rejections

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-3 and 9 are rejected under 35 USC 102 (a) as being anticipated by Kobayashi (EP Pat. 1055520A1).

Kobayashi discloses in Figures 1-2 an ink jet recorder comprising:

- at least one main tank (6) which stores ink therein (Figure 1);
- a plurality of sub tanks (8, 4), communicated with said at least one main tank (6), each sub tank (8, 4) storing ink supplied from said at least one main tank (6), and being communicated with at least one recording head (5) (Figures 1-2);
- wherein a plurality of main tanks (6) are provided (Figure 1);
- wherein the sub tanks (8, 4) are arranged in a vertical direction (Figure 1);
- a first ink amount detector (50e) which detects an ink amount stored in each sub tank (50) (Figure 2); and
- wherein the at least one main tank (6) and the sub tanks (8, 4) are arranged so as to provide a head difference (5) therebetween, to supply ink from the at least one main ink tank (6) to the sub tanks (8, 4) (Figures 1-2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior arts are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18, 45 and 82 are rejected under 35 USC 103 (a) as being unpatentable over Junya (EP Pat. 0965451A2) in view of Kobayashi (EP Pat. 1055520A1), Uzita (US Pat. 5,221,935), and Hmelar et al. (US Pat. 6,151,039).

Junya discloses in Figures 1-17 an ink jet printer comprising:

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- at least one main tank (134) which stores ink therein (Figure 9);
- a plurality of sub tanks (50), communicated with each main tank (134), each sub tank storing ink supplied from the main tank, and being communicated with at least one recording head (1) (Figure 9, page 10, lines 31-32);
- wherein a plurality of main tanks (134K, 134Y, 134M, 134C) are provided;
- wherein the sub tanks (50K, 50Y, 50M, 50C) are arranged in a vertical direction (Figure 9);
- wherein each sub tank (50b) is airtightly formed by a material having flexibility so that a volume of the sub tank is variable;
- a first ink amount detector (50e) which detects an ink amount stored in each sub tank (50) (Figure 2);
- a first supply amount controller (66) which controls a supply amount of ink flowing into each sub tank (50), based on the detection of the first ink amount detector (50e) (Figure 2);
- wherein the first supply amount controller (66) is provided as a first valve member.
- the first valve member (66) is opened when the first ink amount detector (50e) detects an ink low state in which the ink amount stored in the sub tank (50b) is a first predetermined level or less (Figure 2);
- the first valve member (66) is closed when the first ink amount detector (50e) detects an ink full state in which the ink amount stored in the sub tank is a second predetermined level or more (Figure 2);
- the sub tank is communicated with a plurality of recording heads.
- the main tank and the sub tanks are arranged so as to provide a head difference therebetween, to supply ink from the main tank to the sub tanks (Figures 2 and 10);
- the main tank (134) is compressed to supply ink to the sub tanks (50) (Figures 2 and 9);
- wherein the main tank (134) is compressed by a pump member (44) (Figure 9);
- wherein the pump member (44) is connected to the main tank (134) via an air releaser (42) which opens the main tank (134) to atmosphere (Figure 9);
- a second supply amount controller (49), which controls a supply amount of ink flowing out of the main tank (134) (Figure 9);
- wherein the second supply amount controller (49) is provided as a second valve member;
- the second valve member (49) is first opened while the main tank (134) is compressed, and

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then the first valve member (51) is opened to supply ink to the subtank (Figure 9); and
- wherein the first valve member (51) is first closed and the compressing of the main tank (134) is canceled when the subtank is replenished, and the second valve member (49) is then closed (Figure 9).

However, Junya does not disclose the ink jet printer comprising a plurality of sub tanks , communicated with said at least one main tank, each sub tank storing ink supplied from said at least one main tank, and being communicated with at least one recording head; wherein at least one of said sub tanks is communicated with a plurality of recording heads; each sub tank contains a plate member which prevents inner surfaces of the sub tank from being adhered with each other; wherein grooves are formed on surfaces of the plate member ; comprising a memory for storing a residual ink amount in the main tank; and grooves are formed on surfaces of the plate member.

Nevertheless, Kobayashi discloses in Figures 1-2 an ink jet recorder comprising:

- at least one main tank (6) which stores ink therein (Figure 1);
- a plurality of sub tanks (8,4), communicated with said at least one main tank (6), each sub tank (8, 4) storing ink supplied from said at least one main tank (6), and being communicated with at least one recording head (5) (Figures 1-2) ; and
- wherein at least one (8) of said sub tanks (8, 4) is communicated with a plurality of recording heads (5).

Furthermore, Uzita discloses in Figures 8-10 an ink jet printer comprising an ink tank (3) contains a plate member (two unmarked rod elements) which prevents inner surfaces of the ink tank (3) from being adhered with each other.

Additionally, Hmelar et al. disclose in Figures 2 and 4 an ink container (110) comprising a memory for storing a residual ink amount in the ink tank (column 4, lines 51-65)

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It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the teaching of Kobayashi et al. , Uzita et al., and Hmelar in the Junya ink jet printer for the purpose of performing a large amount of printing, preventing the inner surfaces of the ink tank adhering each other, and determining a remained ink amount in the ink container.

Junya in view of Uzita et al. disclose the claimed invention except for “grooves are formed on surfaces of the plate member”. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select changes in the shape of the plate member for the purpose of preventing the inner surfaces of the ink container adhering each other, since it is a mechanical design expedient for an engineer depending upon a particular environment and the applications in which the ink jet cartridge is to be used. In re Daily, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). See MPEP 2144.04.

Response to Applicant's Arguments

The applicant's arguments with respect to the prior art rejection have been carefully considered and have been traversed in view of the new grounds of rejection over Kobayashi et al reference.

CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (703) 305-8194. The examiner can normally be reached on Tuesday to Friday from 8:30 A.M.to 6:30 P.M.. The fax number of this Group 2861 is (703) 305-3431 or 305-3432.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.



ANH T.N. VO
PRIMARY EXAMINER

January 10, 2004